

**FINITE ELEMENT ANALYSIS OF RESIDUAL STRESS  
GENERATION DURING SPOT WELDING AND ITS AFFECT ON  
FATIGUE BEHAVIOR OF SPOT WELDED JOINT**

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**ABSTRACT**

This dissertation presents the finite element based prediction of residual stress generation in a spot welded joint during the spot welding process and the effects of residual stress on fatigue behavior of a spot welded joint. Spot welded advanced high strength steels, namely dual phase DP600 GI and transformation induced plasticity TRIP600 steels were investigated for their fatigue life, microstructure changes and fatigue fracture mechanisms to develop design data for possible application in future light weight and more fuel efficiency automobiles.